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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/522,785

09/06/2005

Ingo Buschke

BUSC3001/FJD

1834

23364 7590 02/13/2007

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ALEXANDRIA, VA 22314

EXAMINER

HOFFBERG, ROBERT JOSEPH

ART UNIT

PAPER NUMBER

2835

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/522,785

Applicant(s)

BUSCHKE, INGO

Examiner

Robert J. Hoffberg

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Detailed Action

Response to Arguments

1. Applicant's arguments filed 1/17/07 have been fully considered but they are not persuasive.
2. Applicant argues that "directly facing" overcomes the prior art reference Johns et al. (US 3,522,486). The examiner respectfully disagrees. The first surface (#17 having #18) of the one circuit board is directly facing toward the first wall (Fig. 2A, #41 left side) of electronics housing. The fact that there are other members present between the first surface and the first wall does not affect the direction that the first surface of the one circuit board is facing. While the applicant argues on page 5 of his arguments that directly facing should be interpreted as "that there are no other circuit boards between the circuit board under consideration and the wall of the housing", the claim has no limitation that prevents an intervening member to be between circuit board and the housing. The use of the transitional phrase "comprising" anticipates that invention is not be limited to claimed structural limitations and may include other structure including another circuit board. Furthermore, the claim 9 requires intervening structure including a potting compound and a heat spreader to be between the circuit board and the wall of the housing. It would be inconsistent to interpret "directly facing" to prohibit another circuit board from being in between the one circuit board and the wall of the housing, while allowing potting compound and a heat spreader to be present.
3. Applicant's argues that mechanical connection of the aluminum shim to the outer wall of the housing generates a hot spot on the outer surface of the wall. The examiner

Art Unit: 2835

respectfully disagrees. The connection point as taught by Johns et al. is not located on the first wall of the housing. The heat spreader (#44) of Johns et al. helps the "inhomogeneous temperature distributions over the surface of said first wall [to] be reduced." What the heat spreader does to the other walls of the housing is immaterial as only the affect on the first wall is being claimed.

4. In response to applicant's arguments regarding the function of the heat spreader (#44) disclosed by Johns et al., when the structure recited in the reference(s) is substantially identical to that of the applicant's claims, the claimed functions are presumed to be inherent. MPEP 2112.01 (I).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 9-10 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by John et al. (US 3,522,486).

With respect to Claim 9, John et al. teach a device, comprising: an electronics housing (#41), which defines a first wall (#41 left) and an internal space (See Fig. 2A); at least one circuit board (#17), which is arranged in the internal space and which is populated at least on a first surface (see Fig. 1) with electronic components (#18), with said first surface facing said first wall and said internal space being filled with a potting compound (#31 and #43) at least between said first surface and said first wall, whereby

Art Unit: 2835

heat given-off by said electronic components can be led-away to said first wall; an area heat spreader (#44) embedded in the potting compound between said at least one circuit board and said first wall, said heat spreader has a front face (#44 left) and a rear face (#44 right), which faces said first wall with its front face and said circuit board with its rear face, and which has a greater thermal conductivity than the potting compound (aluminum vs. polyurethane foam), whereby inhomogeneous temperature distributions over the surface of said first wall can be reduced (claim 9), said heat spreader comprises a metal (Col. 2, line 61, aluminum) foil (claim 10), said heat spreader is essentially planar (see Fig. 2) (claim 13) (examiner note: while Johns et al fails to disclose the side of the circuit board that has the electronic components mounted, if the components are mounted on the left side of #17 in #31' then the first wall is #41 left side, otherwise if the components are mounted on the right side of #17 in #31' then the first wall is #41 right side).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 11-12 and 16-18, as best understood by the examiner, are rejected under 35 U.S.C. 103(a) as being unpatentable over John et al. (US 3,522,486).

With respect to Claim 11, Johns et al. disclose the claimed invention except for heat spreader is copper or aluminum nitride. It would have been obvious to one having

Art Unit: 2835

ordinary skill in the art at the time the invention was made to fabricate the heat spreader from any material including copper or aluminum nitride that has good heat conductivity, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

With respect to Claims 12 and 17-18, Johns et al. disclose the claimed invention except for thickness of the heat spreader. It would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture to have the heat spreader of any thickness including not more than 1 mm, not more than 0.4 mm or between 0.05mm and 0.2 mm that permits the heat to be dissipated, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to Claim 16, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schwarz (US 2004/0075986) disclose an electronics housing, having a first wall and an internal space; a circuit board having electronic components on a first side, which is arranged in the internal space, with said first surface directly

Art Unit: 2835

facing said first wall and said internal space being filled with a potting compound at least between said first surface and said first wall; and an area heat spreader between said at least one circuit board and said first wall.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8:30 AM - 4:30 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2835

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJH 2/6/2007 *efx*

MICHAEL DATSKOVSKIY
PRIMARY EXAMINER

Michael Datskovskiy
02/09/07